



The Impact of a Virtual Reality Training Programme on Health Professional Knowledge, Understanding and Empathy in relation to Dementia

Sharkey, F., Moore, K., Slater, P. F., & Hasson, F. (2019, Oct 1). The Impact of a Virtual Reality Training Programme on Health Professional Knowledge, Understanding and Empathy in relation to Dementia.

[Link to publication record in Ulster University Research Portal](#)

Publication Status:

Published (in print/issue): 01/10/2019

Document Version

Publisher's PDF, also known as Version of record

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Health Research
& Western Health and Social
Care Trust

**The Impact of a Virtual
Reality Training
Programme on Health
Professional Knowledge,
Understanding and
Empathy in Relation to
Dementia**

Summary Report
October 2019



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Dr Kevin Moore,
Dr Paul Slater &
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The Impact of a Virtual Reality Training Programme on Health Professional
Knowledge, Understanding and Empathy in relation to Dementia

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Reference: Sharkey F, Moore K, Slater P. & Hasson F. 2019. The impact of a Virtual Reality Training Programme on Health Professional Knowledge, Understanding and Empathy in relation to Dementia. Ulster University, Northern Ireland.

This Report can be accessed via the Person-centred Practice Research Centre at:
<http://www.science.ulster.ac.uk/inhr/pcp/publications.php>

October 2019

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ACKNOWLEDGEMENTS

The authors would like to express their grateful thanks to everyone who made the completion of this study possible. Firstly, thanks must go to all the participants, both the carers and staff groups who consented to take part in this research study. We would also like to thank the Western Health and Social Care Trust for their unstinting support and assistance with all aspects of the project management on various Trust sites. We wish to also thank the Order of Malta, Omagh for their support with refreshments throughout the study. Finally, the authors wish to thank Western Health and Social Care Trust, Older People's Mental Health Service Staff especially Majella Magee, Assistant Services Manager Older People's Mental Health, for their support in funding and facilitating this research study.

FOREWORD



In Northern Ireland approximately 19,000 people are living with dementia, a number projected to rise to almost 60,000 by 2051 (DHSSPS 2010 & Age NI, 2015). In the Western Health and Social Care Trust (WH SCT) this figure is estimated at 2,830 people and predicted to rise to 3805 by 2021 (NHS Quality and Outcomes Framework, 2014). Up to 70% of acute hospital beds are occupied by older people, approximately 40-50% of whom have dementia (National Dementia Strategy Department of Health 2009 & Alzheimer's Society, 2016).

In 2016, the Department of Health (DoH) published The Dementia Learning and Development Framework (DHSSPS, 2016) which provided a commitment to research and evidence-based practice for dementia care. This strategy included the development of a culture of learning and development, appropriate training and supervision of all those caring for or providing services to people with dementia and evaluation of service developments. The WH SCT is committed to providing staff with the right knowledge and skills to do their job well and supporting them to care for people with dementia.

Florence Sharkey, Lead Nurse for Research and Development within the WH SCT in partnership with our colleague's Dr Paul Slater, Dr Felicity Hasson and Dr Kevin Moore within Ulster University have come together to undertake research on 'The impact of a Virtual Reality Training Programme on Health Professional Knowledge, Understanding and Empathy in relation to Dementia'.

Clinical and physical aspects of care are often the focus of service improvements and are more readily measured. However, in this project, undertaken within the hospital and community settings, the focus has been on enhancing empathy, knowledge and person-centred care in dementia care. The project has been presented internationally at the International Meeting on Nursing Research and Evidence Based Practice, Madrid, Spain, the 1st International Conference on Palliative Dementia Care in Belfast and the International RCN Research Conference, in Sheffield.

I am pleased to present the report to you and wish to thank everyone who participated.

Dr Bob Brown
Executive Director of Nursing
Primary Care and Older Peoples Services.

LIST OF ABBREVIATIONS

DOH	Department of Health
NHS	National Health Service
WHSC	Western Health and Social Care trust
VDT®	Virtual Dementia Tour
WHO	World Health Organisation

SUMMARY

Background

The provision of compassionate, responsive and empathetic caring is interconnected to professional knowledge, critical understanding and increased awareness of the importance of the persons lived experiences of ill health or illness. This is extremely important in ensuring effective care for a person living with dementia. Providing empathetic care enables health professionals to promote care standards, which in turn will lead to less stressful and distressing situations for the person experiencing the effects of dementia. Achieving true empathetic understanding can be elusive in many complex caring situations. However, the emergent literature on the utilisation and emergence of virtual reality training programmes indicates significant positive steps in this direction.

Aim

The overall aim of this study was to explore and examine the impact of a Virtual Dementia Training (VDT®) Programme on participants in terms of their professional knowledge, understanding and empathy in the provision of person-centred care.

Design and Methods

The overall design for this study was a mixed methods exploratory research design, consisting of two phases. Phase one involved a quasi-experimental one-group pretest-posttest repeated measures design which was used to measure quantitative data and changes across three time points; time point 1 was prior to intervention; time point 2 was immediately after the intervention; and time point 3 was measured at 3-months follow up. The Empathy and Understanding in Dementia Index, (Slater et al. in press), a 19-

item, valid and reliable tool was administered pre and post intervention to a census of multi-health professionals (93%, n=223) participating in the study. This tool measured four constructs; previous training, empathy, understanding of behaviours and person-centred practice. All items were measured on a 5-point scale (1- strongly disagree to 5 – strongly agree). Inferential statistics will be used to examine change over time; and the impact of demographic details. The intervention delivered was a 2-hour immersive virtual reality programme, followed by a debriefing session. The virtual reality programme was designed to mimic stage 4 moderate dementia and all participants were then involved in phase two.

Phase two involved an extensive qualitative component, comprising of a series twenty focus groups consisting of 223 participants sampled from phase one cohort, representing health care practitioners across the Trust and carers for a person living with dementia. Focus groups were undertaken to evaluate the views of the opinions of participants in the VDT® programme and to gain an insight into the perceived impact of the training on practice. A discussion schedule based on the aims and objectives of the study and a review of the literature was developed and with consent, discussions were digitally recorded. Prior to focus groups beginning all participants completed a demographic and dementia training questionnaire. Data from the discussion groups were analyzed using thematic analysis. Full ethical approval was sought and granted, for both phases, from both the University and the Trust Quality and Improvement Governance Team.

Results

Analysis of phase one data revealed that prior intervention awareness to empathy levels, understanding of the symptoms of dementia, its impact on behaviour and its role in the

provision of person-centred practice were all scored as neutral, irrespective of health care role, gender, age or setting. Statistically significant positive changes were reported on all items and the three constructs they represented. The changes were noted across all demographic details.

Five themes emerged from the thematic content analysis of the qualitative data: (1) immersive learning; (2) VDT ® experience; (3) empathy related responses; (4) authenticity and transferability and (5) suggestions for improvement. Overall the participants believed the VDT® experience enabled immersive learning through the senses of vision, sound and touch to occur. This enabled them to step into the shoes of a person with dementia through body ownership illusion, increasing cognitive and affective empathy. Many participants found the experience difficult which led to calls for greater psychological support being available at the end of the programme. However, questions regarding the authenticity and the transferability of the learning were raised.

Conclusion

The virtual reality programme had an impact on participants who reported significant increases ‘in feeling in touch with the world of the person with dementia’, ‘understanding of the emotions and the role they play in the presentation of many behaviours displayed by a person living with dementia’. Whilst questions regarding the authenticity and transferability of the learning were raised, overwhelmingly participants valued the experience which stimulated reflection-on-action and reflection-in-action to occur. Such approaches helped to embed the learning and understand the often isolated, fragmented and confusing world of the person living with dementia.

PROJECT BACKGROUND

Dementia is one of the major causes of disability and dependency among older people worldwide (World Health Organisation (WHO), 2019). The prevalence of dementia in Northern Ireland is estimated at 19,765 (diagnosed and undiagnosed) people and it is set to rise at the fastest rate to 60,000 by 2051. In the Western Health and Social Care Trust (WHSCT) this figure is estimated at 2,830 people and predicted to rise to 3805 by 2021 (NHS Quality and Outcomes Framework, 2014).

These figures are consistent with the rising figures for dementia worldwide. It is estimated that somewhere in the world someone develops dementia every 3 seconds. Further, it is estimated that approximately 50 million people worldwide are living with dementia in 2017, with numbers expected to double every 20 years (Alzheimer's Disease International, 2017), reaching 75 million by 2030. Moreover, it is predicted that by 2050 the numbers are expected to increase worldwide to 135.5 million (WHO, 2015). The oldest old (i.e. those aged 80 years and older) make up a high proportion of the estimated population of people with dementia.

Dementia is an umbrella term used to describe a group of symptoms characterised by behavioural changes and loss of cognitive and social functioning (Pierce et al. 2013). In 2016, the Department of Health (DoH) published The Dementia Learning and Development Framework which provided a commitment to the generation of research and evidence-based practice for dementia care. This strategy included the development of a culture of learning and development, appropriate training and supervision of all those caring for or providing services to people with dementia and evaluated service developments.

There are significant personal, social and economic costs associated with living with dementia, the majority of which are significantly borne by family caregivers, as most people live at home are supported by family and community/voluntary services (Connell et al. 2011; Merrilees, 2016). Given that the economic and social costs of dementia are significant, new investment is needed to transform the lives of people living with this disease. One such investment is the use of new technologies to increase awareness and understanding of living with the condition (Sixsmith and Sixsmith 2008; Knapp et al. 2016).

The Virtual Dementia Tour ® (VDT®) is a sensory distortion programme designed to provide greater understanding for people living with dementia. Participants have vision, touch and sound distorted in a similar way to someone living with dementia. It was designed as a programme to help health care providers to understand the world of the cognitively impaired, change their attitudes and thereby improve the way they cared for their patients (Beville, 2002; 2014). Participants are required to complete everyday challenges under such conditions. Healthy, able-bodied participants taking the VDT® demonstrated that inappropriate even bizarre' behaviour might be the norm for people suffering from confusion. Correctly evaluating and improving health care workers response could result in reduced distress for people with dementia, their carers, and substantial cost effectiveness (Beville, 2002). For example, in everyday dementia care settings, behaviour that is considered challenging due to poor sensory issues are often treated with medication, resulting in increased confusion, falls and loss of appetite.

To date, limited research has been undertaken on the impact of the VDT ® programme. Earlier research by Cherinack (2011) suggested that virtual reality training was instrumental in the identification and rehabilitation of cognitive disorders in the elderly.

Other more recent studies also explored the significance of immersive virtual reality and episodic memory in older adults (Corriveau Lecavalier et al. 2018), whilst Foloppe et al. (2018) investigated a case history approach to the use of virtual reality-based training to enhance the functional autonomy of Alzheimer's disease patients in cooking activities. Bryant et al. (2019) suggested that research involving virtual reality was in its infancy but suggested that there was an emergent body of literature that indicated applying virtual reality training improved and developed physical, psychological and communication interventions. Researchers (Wijma et al. 2018; Adelifa et al. 2016; Hirt et al. 2019) highlighted that virtual reality interventions improved the understanding and empathy for people with dementia in informal caregivers.

Slater et al. (2017; 2019) undertook a qualitative evaluation of the VDT ® programme in Ireland and reported that the VDT® programme had a significant impact on participants' understanding of what it is like to live with dementia. They further reported that the use of new innovative virtual reality technologies provided a unique learning experience, to walk in the shoes of the person with dementia and to support current training strategies.

Donahoe et al. (2014) identified challenges within the traditional teaching of undergraduate students in social work practice and suggested that many students had difficulty empathizing with older adults due to many misconceptions about this client group and coexistent fears and apprehensions related to ageing. They advocated for the inclusion and incorporation of an immersive experiential learning solution called the Virtual Dementia Tour into undergraduate training programmes. Their research concluded that the VDT® was an effective evidence-based learning tool for increasing student knowledge about ageing and moreover they asserted that it also improved

empathy and sensitivity toward older adults living with dementia.

Current research has reported that the virtual reality training programmes showed significant increases in empathetic understanding and knowledge of dementia, compared to traditional classroom training (Donahoe et al. 2014; Doube and MacGuire, 2016; Hirt et al. 2019). In response there has been a growth on the use of virtual reality technology in simulation training with older people (Ge et al. 2018), such as in pain management (Benham et al. 2019), mild cognitive impairment (Faucounau et al. 2010) and navigation (Coutrot et al. 2019). However there remains a dearth of strong empirical evidence to examine how virtual reality can impact on professionals understanding of symptoms and lived experiences within difficult to articulate conditions such as dementia.

Early emerging research among health professionals (Slater et al. 2019) and (informal) carers (Wijma et al. 2018) reported significant impact on the promotion of understanding and empathy for the lived experience of dementia and the production of changes to practice (Slater et al. 2019). However, further strong empirical evidence is required at this stage before being conclusive of its overall impact. Part of the process involves the necessity to examine the concept of empathy and its subsequent measurement. Fagiano (2019) defined empathy as a set of three conceptually distinct, though experientially overlapping relations; the relations of feeling into, feeling with and feeling for. Hall and Schwartz (2019) provide an in-depth analysis of the concept of empathy present and future in their research and suggested it had central significance for the health professions.

In the WHSCT, the Virtual Dementia Tour® mobile bus simulated training was

implemented across different healthcare settings with carers, staff and some individuals in the early stages of living with dementia as part of the WHSCT ongoing dementia training programmes. The overall aim of this research project is to provide an evidence base of its impact on views and perceptions of care, to provide a strong and critical evidence-base for maximizing its potential based on a comprehensive analysis of the research results.

METHODOLOGY

Phase One: Quantitative Phase.

Sample

Participants were drawn from across one of the five Health and Social Care Trusts in Northern Ireland that have been using the VDT® as a training tool. Participation was voluntary and open to health professionals, voluntary groups and members of the community. Over the period of two weeks, there were a total of 240 participants. All participants were invited (census) and a response rate of 223 completed questionnaires for all time points representing a response rate of 93%. Follow up data was collected 3-months post intervention to examine sustainability of the findings. A response rate of 35% (n= 83) was achieved.

Intervention

The VDT® programme claims to be a replication of stage four-five (moderate) dementia. The programme lasts 2-hours and involves 10-minutes of sensory (visual, auditory and tactile) distortion using apparatus, and cognitive confusion by requiring participants to complete simple tasks, such as folding clothes. This is to mimic distortion produced by the deterioration of the parietal, temporal, occipital and frontal lobe as well as the limbic system and cerebral cortex. This is followed by an opportunity to watch the behaviour of another group participate in distortion session. A 30-minute debriefing programme completes the training.

Instrumentation

The 'Empathy and Understanding in Dementia Index', a valid and reliable assessment tool designed to measure the impact of training on empathetic understanding and person-centred practice in dementia was used and reported to have strong psychometric properties (Slater et al. in press). It consisted of 19 items in total, 15 items, measuring

empathy, understand and person-centred care. Four additional items measured experience of previous training. Demographic details for all participants were also recorded. All items were measured on a 5-point scale ranging from 1 – Strongly Disagree to 5 - Strongly Agree.

Statistical Analysis

Demographic details of the sample were examined to identify the characteristics of the sample. Descriptive statistics were generated for each of the items across all time points, including frequency scores and measures of distribution. Items were summated and inferential statistics were calculated across time points to show changes on constructs.

Phase Two: Qualitative Phase

Sample

A self-nominating sample drawn from willing volunteers from phase one were recruited to take part in discussion group. Eligibility criteria required participants to be aged over 18 years of age or over, have completed the VDT® training within Western Health and Social Care Trust and be willing to participate and provide informed consent. Any participant who does not meet the above criteria will not be included in the study.

Instrument

A focus group schedule was developed based on the aims and objectives of the study and a review of the literature. The schedule focused on three broad aspects: (1) experiences of the VDT® programme (2) the benefits of VDT® Programme and (3) impact of the VDT® programme on practice. Probes were used to clarify the meanings of responses. With the participant's permission, the discussion was digitally-recorded and supplemented by field notes.

Data analysis

All digital recordings were transcribed verbatim and then subject to thematic analysis using the six-step framework advocated by Braun and Clarke (2006) which involves familiarising yourself with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and producing the report.

Rigour

Measures to ensure trustworthiness of the data were implemented (Lincoln & Guba, 1985). For example, confirmability and dependability was enhanced by three independent researchers (KM, FS & FH) analysing and reviewing the transcripts. Creditability was assured by the triangulation of data sources across different clinical settings helping to increase variety of aspects. Transferability was assured by dense description of the research analysis and findings and the inclusion of quotations in the findings.

Ethical Issues

Trust Quality and Improvement governance approval was obtained from the WHSCT and ethical approval obtained from Ulster University, Institute of Nursing and Health Research Governance Filter Committee. In phase one, a participant information sheet accompanied the questionnaire and advised participants that return of the questionnaire implied consent. In phase two, written informed consent was obtained from all focus group participants with a distress and lone researcher protocol adhered to throughout the data collection process.

FINDINGS

PHASE ONE: QUANTITATIVE RESULTS

Demographic Details

Table 1 details the demographic profile of the participants into the respective age groupings and settings and details their existing educational profile.

Gender		Age		Education	
Female	91.5 (205)	18-24	8.4 (19)	Degree	42.5 (88)
Male	8.5 (19)	25-34	20.0 (45)	Diploma	25.6 (53)
		35-44	21.8 (49)	Masters and higher	5.8 (12)
Setting		45-54	27.6 (62)	Other	26.1 (54)
Hospital	25.0 (53)	55-64	17.8 (40)	Previous Training	
Community	70.3 (149)	65+	4.4 (10)	Yes	31.0 (70)
Voluntary	4.7 (10)			No	69.0 (156)

Table 1. Demographic profile of attendees

There was a good spread across health and social care professionals and informal carers (see figure 1). Most participants were 'Others' including psychiatrists, psychologists, student nurses and student social workers. The second largest group was from medical or allied health professional backgrounds including occupational therapists and physiotherapists. Fifteen participants (7%) were carers.

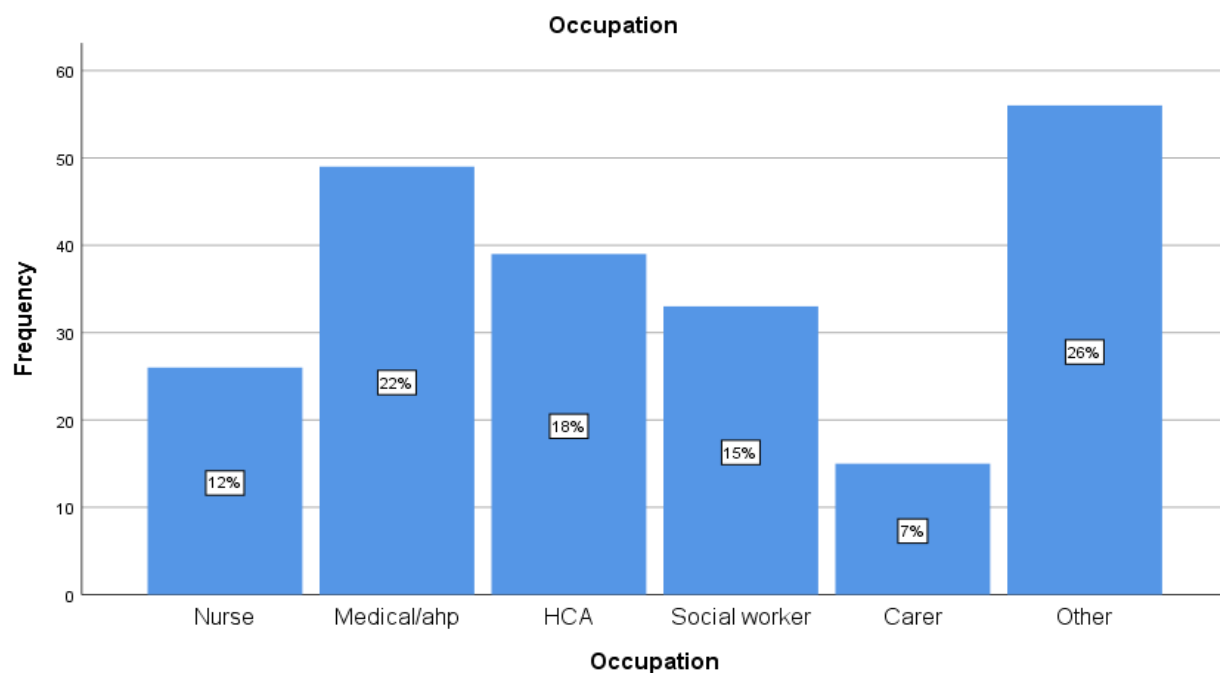


Figure 1. Distribution of Participants in the VDT® evaluation study

Correlation analysis shows there was a moderate and positive relationship across all four constructs, whereby as one score increased other scores increased also. It also showed variability in scorings across constructs. Cronbach's alpha scores were acceptable (see table 2).

Construct Definition	Mean	SD
Training in Dementia care: How well previous training has provided participants with a strong evidence base of the physical, emotional wellbeing impacts on the mind-set and thinking of the person with dementia. (α time 1=0.88)	3.47	.82
	---	---
Empathetic understanding of the impact of Dementia: The ability for participants to empathically understand and interpret the impact of changes caused by dementia on a person's emotions and thinking patterns. (α time 1=0.91, time 2=0.95)	2.90	.82
	4.21	.79
	4.29	.77
Understanding of Behavioural impact of Dementia: Understanding of the impact of emotional and cognitive changes caused by dementia translated into behaviours such as agitation, aggression etc. (α time 1=0.85, time 2=0.89)	3.58	.69
	4.54	.56
	4.74	.40
Provision of Person-centred Care: The role of holistic perspective to dementia and empathetic understanding in the provision of effective care. (α time 1=0.91, time 2=0.74)	4.23	.76
	4.68	.43
	4.78	.32

Table 2. Measures of distribution across four constructs

Training in Dementia care

The items in this factor looks at how well previous training has provided participants with a strong evidence base of the physical, emotional wellbeing impacts on the mind-set and thinking of the person with dementia. The mean scores ($\bar{x}=3.47$) for the construct shows that participants felt a slight sense of agreement.

Repeated Measures of Constructs

Examination of the mean scores for all three constructs across the three time points show that there are statistically significant increases in scores from pre and post scores, and these changes are not only sustained but increased at 3-month follow up (See figures 2-4). The changes were at a statistically significant level between pre-intervention levels and both post intervention and 3-month follow up.

Empathetic Understanding of Dementia

A repeated measures ANOVA was conducted to assess whether there were differences between mean scores of 'Understanding empathic impact of Dementia' scores (Figure 2). Repeated measures analysis of variance show there to be a statistically significant difference in scores across time points $F(1.91, 153.00) = 59.42, p < 0.001$.

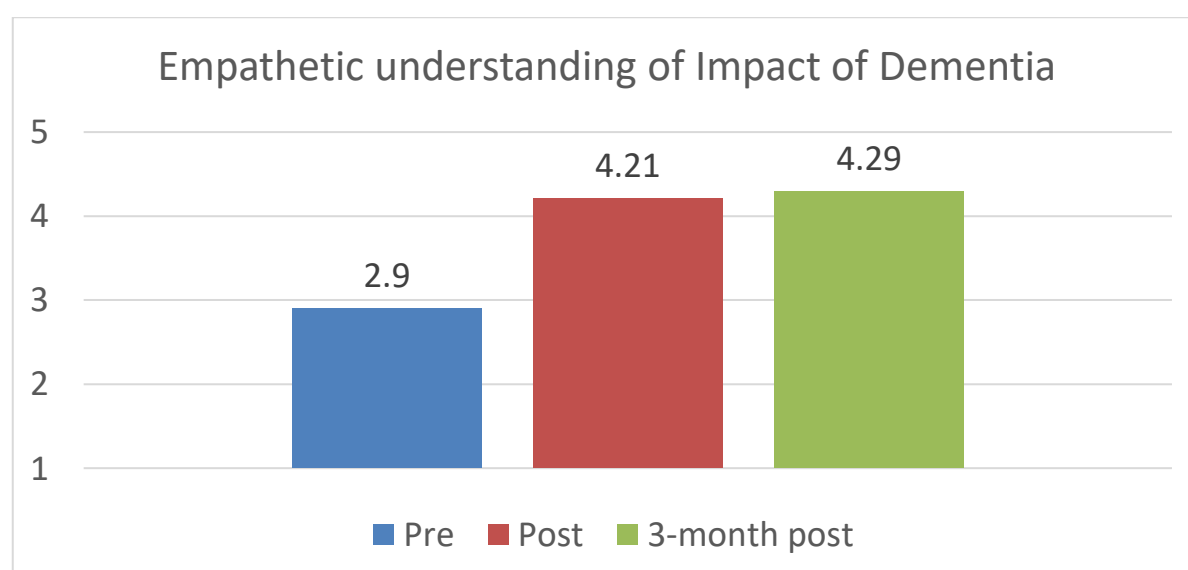


Figure 2. Changes in Empathetic Understanding of Dementia over time points

Understanding of Behavioural impact of Dementia:

A repeated measures ANOVA was conducted to assess whether there were differences between mean scores of 'Understanding of Behavioural impact of Dementia' scores (Figure 3). Repeated measures analysis of variance show there to be a statistically significant difference in scores across time points $F(1.94, 151.64) = 36.65, p < 0.001$.

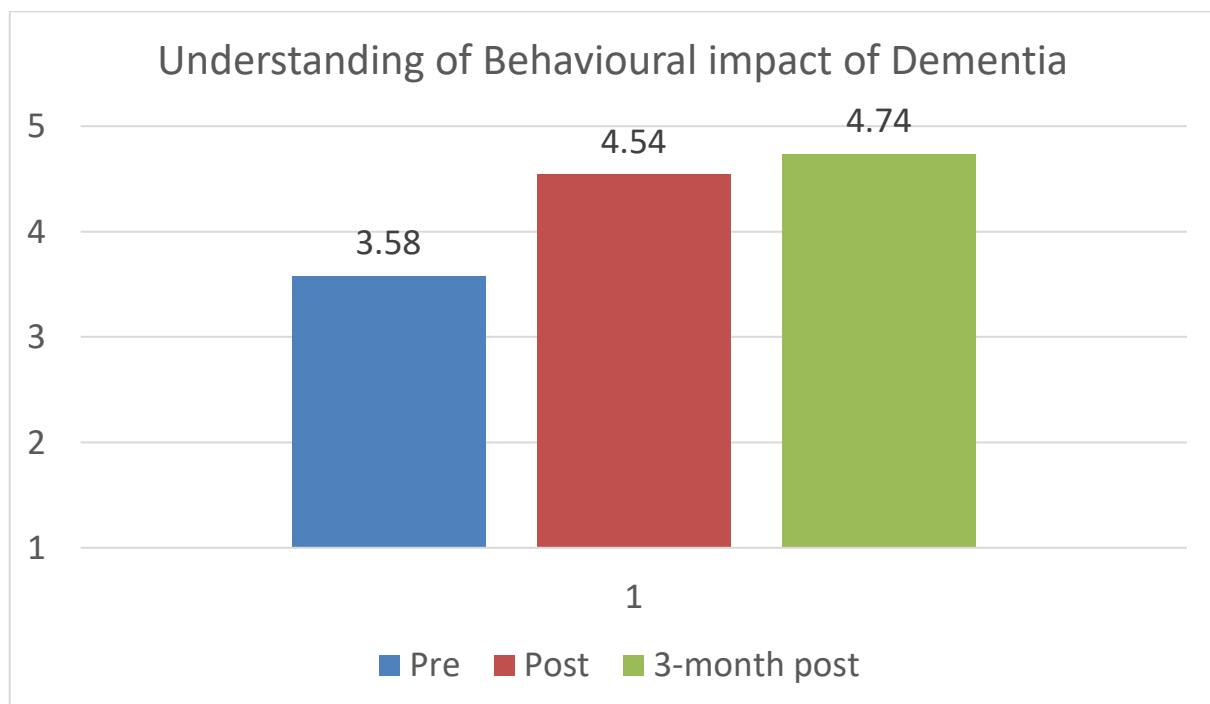


Figure 3. Changes in Empathetic Understanding of Dementia over time points

Provision of Person-centred Care

A repeated measures ANOVA was conducted to assess whether there were differences between mean scores of 'Provision of Person-centred Practice' scores (Figure 4). Repeated measures analysis of variance show there to be a statistically significant difference in scores across time points $F(1.73, 138.11) = 36.65, p < 0.001$.

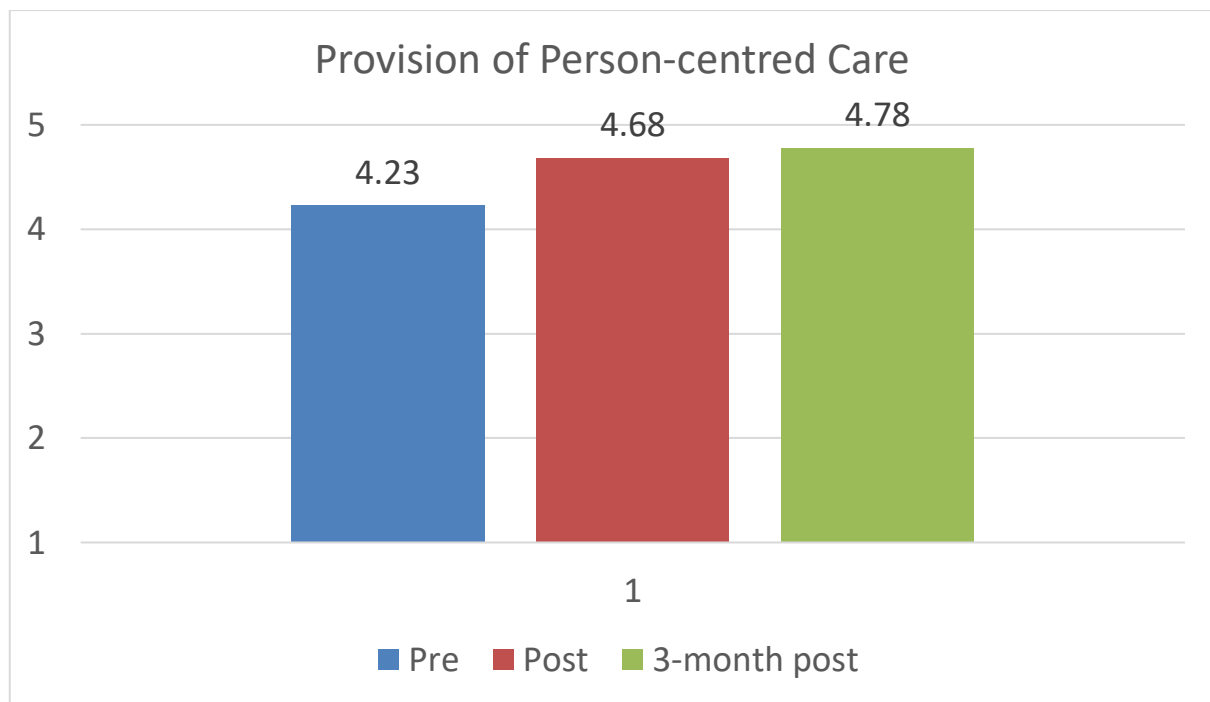


Figure 4. Changes in Empathetic Understanding of Dementia over time points

Analysis of impact of intervention according to Demographics

Examination of the effects of demographic details on the impact of the intervention using an Analysis of Covariance show that the change was noted across all groups for both constructs empathetic, understanding and understanding behaviour. Post intervention scores were compared across demographics (Gender, age, Occupation, setting and education) whilst controlling for pre-intervention scores in order to get a full account of whether a group gained more from the intervention. The statistical impact of the intervention was noted across all groups irrespective of demographic details. Only gender was found to influence the effect on the provision of care ($f=6.775$, $df=102,1$, $p=0.01$) and females mean scores increased from 4.22 – 4.69; males increase slightly less 4.22 – 4.55).

Perspective of the VDT® Programme

Participants were asked to provide feedback on the impact of the intervention on their attitudes and related to their own field of practice. The vast majority of participants supported the programmes and viewed it as having a significant impact on attitudes (97.3%) to people with dementia. Almost all participants felt that the training would have an impact on their approach to practice (98.7%). All participants (100%) stated they would recommend the programme to others as detailed in Table 3.

	Yes	No
Do you believe that your attitude to people with dementia has changed?	97.3%	2.7%
Do you believe that you have changed your practice or approach to the person with dementia?	96.5%	3.5%
Do you believe the training has had an impact on your attitude to people with dementia?	96.6%	3.4%
Do you believe that you will change your practice or approach to the person with dementia?	98.7%	1.3%
Would you recommend this training to others?	100%	

Table 3. Impact of the training programme on Participants Attitudes

PHASE TWO: QUALITATIVE RESULTS

Participant characteristics

A total of twenty focus groups across different Trust venues were conducted with both health care practitioners (n=15) and participants who designated themselves as carers for a person living with dementia (n=5). The total sample consisted of 223 participants, with 205 female participants and 19 male participants (1 female participant had to withdraw from the study for personal reasons). Of the 223 participants a total of 52 participants (23.3%) identified a current and direct family related caring role for a person living with dementia. Of these 52 participants a total of 37 participants identified themselves also as a health care practitioner and a total of 15 participants identified themselves as a carer only and not a health care practitioner. The age range for participants was from 18 years of age to 65+.

Themes

Analysis of the qualitative data resulted in the emergence of five themes: (1) immersive learning; (2) VDT ® experience; (3) empathy related responses; (4) authenticity and transferability and (5) suggestions for improvement. Each theme is described and illuminated further by the verbatim comments provided by the participants and an analysis of these themes is presented herein.

Theme: Immersive Learning

Dementia education traditionally was based upon the transition of knowledge via print, audio, or visually that was most often passively received (or not) by the recipient. For many the interpretation of that knowledge did not prepare them for the realities of caring for someone with dementia or understanding the complexity or the holistic effect of the

condition on the person.

The VDT® experience enabled immersive learning through the senses of vision, sound and touch to occur. The opportunity to learn through experience, and engage in meaningful interactions in a safe, controlled virtual environment further enhanced the experience and learning. The opportunity to experiment with the experience of walking in a person living with dementia shoes was powerful and locked in learning at a deeper level than traditional modes of teaching and learning previously experienced. This provided a unique insight into dementia providing a greater understating of the holistic implications of the condition on the person. Many participants reflected that the experience helped them to understand that dementia not only affected the person's memory but all the senses resulting in an array of feelings and emotions. This knowledge provided a platform from which to not only understand the condition but also the person diagnosed, their emotional, social and physically reactions to living with the illness. As illustrated:

“You could actually feel what they are feeling. It's different from going to a course and your being told how they are feeling, when you actually experience it, it makes a big difference” (FG 17 Part 3)

Participants reported they gained knowledge, but it also enabled their critical thinking, creative skills and reflective learning to occur both individually and in collaboration with other participants. VDT® experience enabled participants to absorb knowledge at their own pace and they felt they were given the freedom to explore the dementia virtual world to look, and touch and move however, he or she decided. This individualised their learning by making participants strategize and make their own decisions, so they learnt about not only the condition but how they would react in that situation.

Upon completion of the experience, learning continued to be embedded by connecting the VDT® experience to participant's clinical practice or previous episodes of care giving. This opportunity to reflect upon their practice and their colleagues was an integral part of learning. For example, it enabled the linkage of new to existing knowledge, formulating integrated knowledge bases and increased self-awareness of their practice and the recognition to engage in monitoring. This led to some participants being highly critical of their previous practice and existing knowledge base. As stated,

"I've seen me doing it I used to be walking beside them {dementia patient} saying "lift your feet, lift your feet, lift your feet!" now I know they can't lift their feet there's a reason why they can't do that" (FG 1 Part 4).

"At one stage I said to myself, I just want to go home. It was like a light bulb moment then when I realised, that's why they [dementia patients] were always walking about saying "can I go home?" because they feel they want to go to a place where they feel safe.... it was really insightful just shocking". (FG 2 Part 5)

Theme: VDT® Experience

Participants identified a range of motivators to attend the training ranging from the need to access more training to recognising the need to improve front line care. Prior to entering or engaging with the training, many participants stated that they were unfamiliar with the training's aim and/or content which led to many feeling apprehensive or fearing the unknown.

With their senses distorted, many could not carry out simple instructions leading to feelings of anger and resentment. While some participants became task oriented in

order to complete the instructions others froze or moved slowly around, scared of their surroundings, whilst others walked around aimlessly. Many participants found the experience difficult resulting in an array of very powerful emotional responses such as feeling frustrated, vulnerable, isolated, scared and anxious. Overall, there was a sense of relief when the virtual experience ended. As explained:

“...for me what I found was there was no let up for the physical impact vs the visual vs the noise... you have to deal with all of them at once and you don’t get relief. I started to feel pain and discomfort on my legs so then I started to feel tired ...and then maybe begin to feel a bit agitated because you didn’t feel in control ...you felt scared” (FG2 Part 2).

“It was frightening, at least you knew there was an end coming, but somebody with dementia doesn’t have an end it just continues on and on” (FG 13 Part 3)

Responses to the experience varied considerably and whilst many viewed it as a powerful learning experience, it did cause professional and personal distress. Professionally, some participants reflected on the level of care and understanding given to people with dementia in their care. This resulted in many expressing feelings such as guilt, remorse and anger that their traditional training had not exposed them to the holistic impact of the condition sooner. Personally, many feared being diagnosed with dementia and questioned their ability to live with the condition and some were emotionally upset when they thought of loved ones currently living with the condition. These responses were quite strong and marked for those participants who were currently caring for a family member living with dementia. As illustrated:

“I don’t think you’ll ever understand it until you’re in it but that gave you a snapshot of why dementia patients behave the way they do. We had a couple of minutes

and I hated it, so I was out of my comfort zone, really uncomfortable, like so anxious...” (FG 11 Part 3)

Given the VDT® experience, many believed it would change their thinking and approach to practice. For example, there was a greater awareness of the emotional response of the person with dementia and an understanding of the behaviours exhibited. Further, there was an increasing awareness and sensitivity to how and why the person may be feeling and how this was intrinsically linked to their presenting with their current behaviour patterns; that many had previously regarded as just part of the overall illness profile.

Theme: Empathy Related Responses

Overwhelmingly participants believed the VDT® experience allowed them to step into the shoes of a person with dementia through body ownership illusion, increasing cognitive and affective empathy. Cognitive empathy was reported to be attained by participants reporting an understanding of the thoughts and feelings of a person with dementia. Whilst affective empathy cultivated sympathy for a person living with the condition. Most participants reported they had a better understanding of the emotions and behaviour of people with dementia which they felt would influence their tolerance, confidence and approaches in the future. Most believed this made them more aware and committed to taking greater cognisance of how they interacted, responded and provided care to the person living with dementia.

“That was only 8 minutes, but can you imagine then if they’re constantly feeling that anxious, they must be feeling sick and then you can’t communicate to anybody how your feeling” (FG5 Part 1).

“It’s putting you in the persons mind set and what’s going on with them, you can empathise with them more” (FG 16 Part 2).

“I think in that busy environment you can make the incorrect assumption because you haven’t heard or understood, for me its created that empathy around that about slowing down. It’s made me realise there’s a lot of misunderstanding or miscommunication around dementia and how to manage it” (FG 11 Part 3).

The experience also enabled participants to be much more self-aware and understand more fully themselves as they had now experienced a degree of the virtual reality. This enabled participants to know about one’s self as a person, link past, present and future experiences as well as reflect on their behaviour, attitudes and beliefs stemming from the virtual reality world. This resulted in the cognitive and emotional experience being closely integrated with most participants reporting a desire to change their current practice, recognise the new knowledge/skills obtained and to articulate planned new approaches to the care and management of a person living with dementia.

Theme: Authenticity & Transferability

Two key questions were raised by participants regarding the authenticity and the transferability of the learning. Firstly, several participants questioned the premise that the VDT ® experience was authentic and reflective of moderate levels of dementia. Given the varying stages and types of dementia the validity of the training experience was repeatedly questioned. Secondly, training alone was recognised as a “drop in the ocean” and insufficient to creating and sustaining a culture of dementia-oriented care. As commented:

“...everybody’s different. Just because we have a headset and glasses on doesn’t

mean the person, I'm going to see has all those problems. The problem is the type of dementia and the stage of dementia they might not have all of that at once" (FG 10 Part 3).

"You can't just say because you've been on the bus that's how I felt everybody with dementia would feel but it just gives more of an insight into it but I don't think it answers all the questions" (FG 18 Part 2)

Several barriers to providing appropriate care for the person living with dementia were identified. These included, ineffective pathways of care, unsuitable environments, inadequate resources (time and staff) and a lack of standardised training for staff caring for people with dementia. From this VDT® training experience several recommendations to improve current practice standards were made.

For example, the use of colours in the health environment, the need for staff to have time to interact with a person living with dementia, the reduction of environmental noise and the need for all staff, at all levels, to have accessed virtual dementia training was advocated. However, whilst many practitioners had the knowledge and motivation to change their current practice many were also quite despondent that the realities of clinical practice meant change was not always achievable. For example, the realities of clinical practice meant that it was unlikely health professionals could spend any additional time with people living with dementia. Many voiced their frustration that managerial practices, workforce capabilities, environment and work design remained the same despite the realisation that changes were obviously needed. As explained:

"It's going to be a big task but you still are going to have the same say A&E, the wards and the white rooms, it will take time and money just the change that whole

environment and I don't know how long it's going to take to change all that" (FG 18 Part 4)

Theme: Suggestions for Improvements

Some improvements were suggested concerning the delivery of the VDT® programme with the need for greater psychological support to be readily available afterwards. Some suggestions were also made regarding the delivery of the training such as informing participants of the stage of dementia which may help to facilitate greater understanding. Greater utilisation and increased availability of the training for all staff and carers for a person living with dementia were significantly strong themes that emerged across all of the focus groups. Many participants suggested that the training should be mandatory for all qualified health care practitioners, particularly student nurses and carers.

Many participants also recommended that the experience would be helpful for a wide range of groups including less experienced health care providers, front line managers, and administrators across all health and social care services. However, they also saw the need for such training to be available to other service providers including the police force, social services and members of the community. They felt the experience would provide action points to inform shared decision-making and thinking with the person with dementia, leading to more meaningful and tailored care. However, the VDT® experience on its own was not considered enough to equip health professionals with the skills or theory to underpin the totality of care to a person living with dementia. Rather, it was recommended that it should be a part of the educational scaffolding of dementia training in conjunction with traditional modes of learning and clinical exposure.

CONCLUSION

A better understanding of the world of the person with dementia has a significant impact on the care provided by health care professionals. VDT® programme offers an opportunity to participants to 'walk in the shoes' of the person with dementia and create a sense of empathy thereby promoting compassionate care. The findings from this study show that participation in the VDT® programme produced a significant improvement in understanding the cognitive, emotional and behavioral aspects of dementia and how this translates into person-centred care.

Whilst questions regarding the authenticity and transferability of learning to practice all participants felt it was an extremely beneficial experience. Unlike previous training experiences, the VDT® experience enabled immersive learning through the senses of vision, sound and touch to occur. This provided a unique insight into the world of someone living with dementia, which led to reflection-on- action and reflection-in- action to occur, further embedding the learning experience. The VDT® experience can provoke rich emotional experiences which may be an integral part of the learning, however the implications of this on the participant requires careful consideration.

Limitations

There are several limitations to this study. Firstly, this study was conducted using a sample of participants from within one Health and Social Care Trust. A larger scale study that incorporated a larger inclusive sample size and control group could perhaps generate further perspectives. Secondly, whilst the qualitative phase of the study has presented a thematic analysis approach of content within the data, a degree of caution should be exercised in making generalisations that are considered applicable to all

aspects of care for a person living with dementia.

Finally, the focus of the study was on the impact of a Virtual Reality Training Programme on Health Professional Knowledge, Understanding and Empathy in relation to Dementia and most participants were specifically derived from staff employed within the Trust with a smaller number of participants designated as carers for a family member living with dementia. The research team did not attempt to differentiate the views of these carers in any way, which may have offered additional insights. While this may be considered a limitation, it must be considered in the context of the large body of evidence that already exists with respect to the families' perspectives and involvement in long-term care relative to the paucity of research on Virtual Reality Training in dementia.

RECOMMENDATIONS FOR ACTION

Several recommendations based on this study's findings are now presented to further enhance our understanding of the context and importance of the Virtual Dementia Training Programme. The recommendations address issues relating to policy, practice, education and research.

Practice: This study has highlighted core components of the VDT® training programme that help and enable care staff to develop a more empathetic experience for the person living with dementia and every effort should be made to enable care staff to have these educational experiences that are considered enablers for person-centred care.

Policy: The findings of this study have implications for health and social policy and for the organization and management of dementia care and dementia training. The quality of care should be underpinned by integrative training approaches that enable person-centred care to flourish and which help to maximize the degree of decisional autonomy in day-to-day activities for the person living with dementia.

Education: It is recommended that education providers and care environments work in partnership to provide high quality practice learning experiences for undergraduate and postgraduate students that include an emphasis on Virtual Reality Training.

Further Research: The findings from this study explicate core issues on the meaning and context of Virtual Reality Training Programmes for a person living with dementia. Further research is needed to test the relevance of the constructs identified in a more diverse sample of care staff working in other health and social care environments.

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